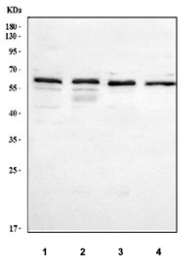
Perforin Antibody / PRF1 (R31574)

Catalog No.	Formulation	Size
R31574	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Antigen affinity purified
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P14222
Applications	Western Blot : 0.5-1ug/ml
Limitations	This Perforin antibody is available for research use only.



Western blot analysis using Perforin antibody. Lane 1: human HepG2 whole cell lysates; Lane 2: human HEL whole cell lysates; Lane 3: human Daudi whole cell lysates; Lane 4: human HUH7 whole cell lysates. The predicted molecular weight of Perforin (PRF1) is ~61 kDa, and a band is observed at the expected size.

Description

Perforin antibody targets Perforin, encoded by the PRF1 gene. Perforin is a pore-forming cytolytic protein that is a key effector molecule of the immune system, best known for its role in the cytotoxic activity of natural killer cells and cytotoxic T lymphocytes. It is synthesized as an inactive precursor and stored within cytotoxic granules, where it is poised for rapid deployment upon immune cell activation. Upon release at the immunological synapse, Perforin inserts into target cell membranes, forming pores that enable entry of pro-apoptotic proteases such as granzymes.

Functionally, Perforin is essential for immune surveillance and host defense against virus-infected and malignant cells. By creating transmembrane pores, Perforin facilitates granzyme-mediated apoptosis of target cells, ensuring efficient

elimination without widespread tissue damage. This mechanism allows cytotoxic lymphocytes to precisely control cell killing while preserving surrounding healthy tissue. A Perforin antibody supports studies focused on cytotoxic immune mechanisms and lymphocyte effector function.

PRF1 expression is highly enriched in immune cell populations with cytolytic capacity, including natural killer cells and CD8-positive cytotoxic T cells. Expression levels are regulated during immune activation, differentiation, and maturation of these cells. Although primarily associated with immune lineages, Perforin expression can also be detected at lower levels in certain transformed or stressed cells, reflecting context-dependent regulation in experimental systems.

From a disease-relevance perspective, dysregulation of Perforin expression or function is linked to immune deficiency and immune hyperactivation disorders. Loss-of-function mutations in PRF1 are associated with familial hemophagocytic lymphohistiocytosis, a severe immune dysregulation syndrome characterized by impaired cytotoxic function. Conversely, altered Perforin activity has been investigated in autoimmune disease, chronic infection, and cancer immunology, where cytotoxic lymphocyte activity influences disease outcome and therapeutic response. These associations make PRF1 an important target in studies of immune-mediated pathology and immunotherapy.

At the molecular level, Perforin is a calcium-dependent protein that undergoes regulated trafficking, processing, and activation within cytotoxic granules. Post-translational modifications and controlled conformational changes influence its activity and electrophoretic behavior on SDS-PAGE without implying changes in primary sequence. A Perforin antibody supports research applications focused on immune effector mechanisms, lymphocyte biology, and disease-associated alterations in cytotoxic function, with NSJ Bioreagents providing reagents intended for research use.

Application Notes

The stated application concentrations are suggested starting amounts. Titration of the Perforin antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

Human partial recombinant protein (AA 175-555) was used as the immunogen for this Perforin antibody.

Storage

After reconstitution, the Perforin antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.